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TITLE: POLAR SURFACE ACOUSTIC WAVE DEVICE

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ABSTRACT:

PROBLEM TO BE SOLVED: To improve the attenuation gradient near a cutoff by setting at least one of vibration mode of one coupled multimode SAW filter constituting a resonance synthesis-type filter and as least one vibration mode of the other filter in such a way that resonance frequencies are equal and input/output phase shift quantity in the resonance frequencies differ by a specified value.

SOLUTION: The filters A and B being vertically coupled triple mode SAW filters are electrically connected in parallel to constitute a resonance synthesis type SAW filter C. The filter B is arranged by shifting the electrode fingers of IDT4a by  $\lambda/2$  so that the phase becomes opposite to that of the filter A. IDT2a-2c and 4a-4c are set so that the relation of the resonance frequencies of the filters A and B satisfies  $F_{a1}=F_{b1}$  and  $F_{a3}=F_{b2}$ . Input/output phase shift quantity is varied by  $(2n+1)\pi$ , ( $n=0.1...$ ). Thus, the resonance synthesis type SAW filter C whose attenuation gradient near the high band-side of the cutoff is steep can be provided.

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